Paul Leadley & Christophe Le Page

ATELIER RÉGIONAL /// REGIONAL WORKSHOP
SCÉNARIOS DE LA BIODIVERSITÉ AFRICAINE /// SCENARIOS OF BIODIVERSITY CHANGE IN AFRICA

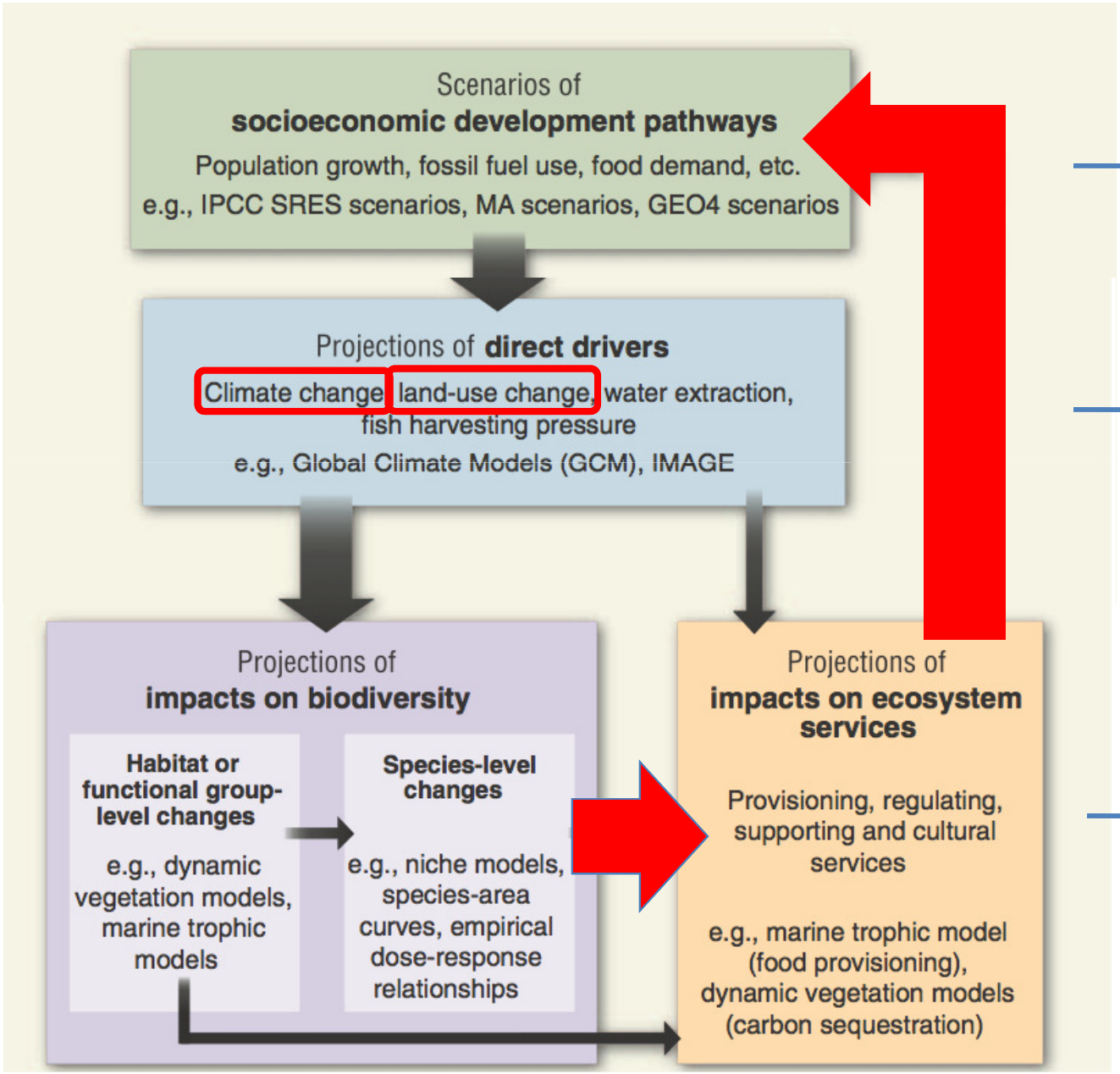
25-27 MARS 2013 • LIBREVILLE - GABON • 25-27 MARCH 2013

Diversity of « forward-looking » approaches

- **Expectation** (revealing plausible futures)
  versus
  Desire (defining targets)

- **Outlining the future** (policy-maker)
  versus
  Fostering anticipatory learning to enable adaptive co-management (local community)

Whole planet scenarios



IPBES Terminology

'Scenarios'
of socioeconomic development

'Models'
of direct drivers

'Models'
of biodiversity And ES

'Scenarios + Models' *(= Scenarios)*

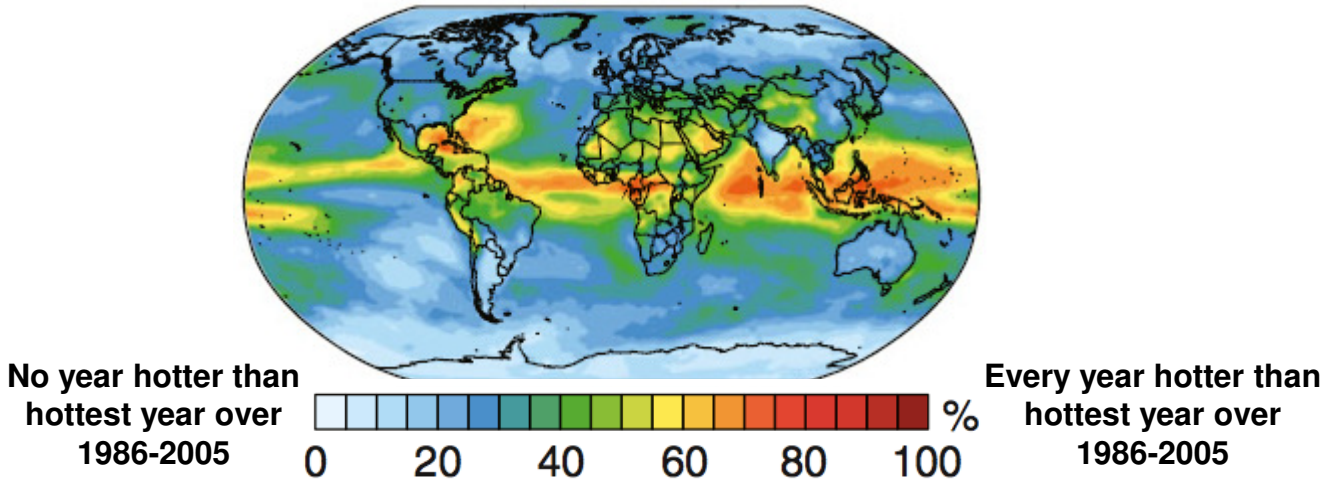
Pereira, Leadley et al. 2010. Science.

Climate change is projected to increase substantially in importance as a conservation issue over the next several decades

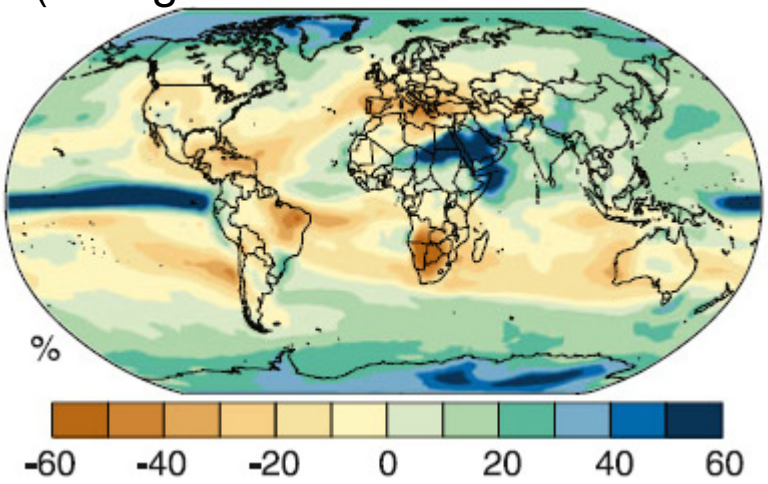
Climate change as a driver of biodiversity dynamics

IPCC CMIP5 RCP scenario (RCP 8.5 – June,July,August)

Air temperature 2016-2035



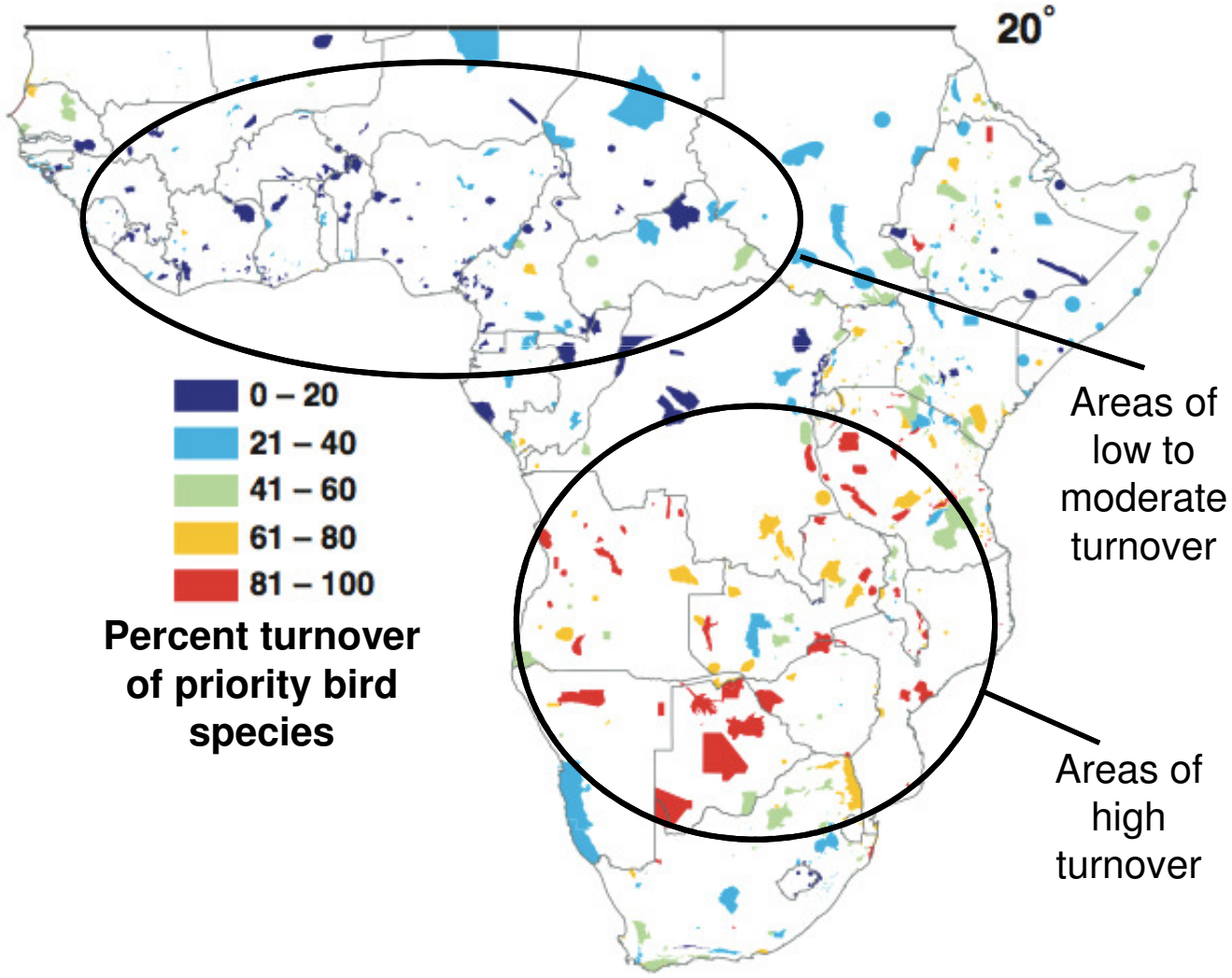
Precipitation (change between 1986-2005 and 2080-2099)



Diffenbaugh & Giorgi 2012

Shifts in species ranges due to climate change leads to projections of substantial species turnover important conservation areas

Example: Important Bird Areas (IBAs)

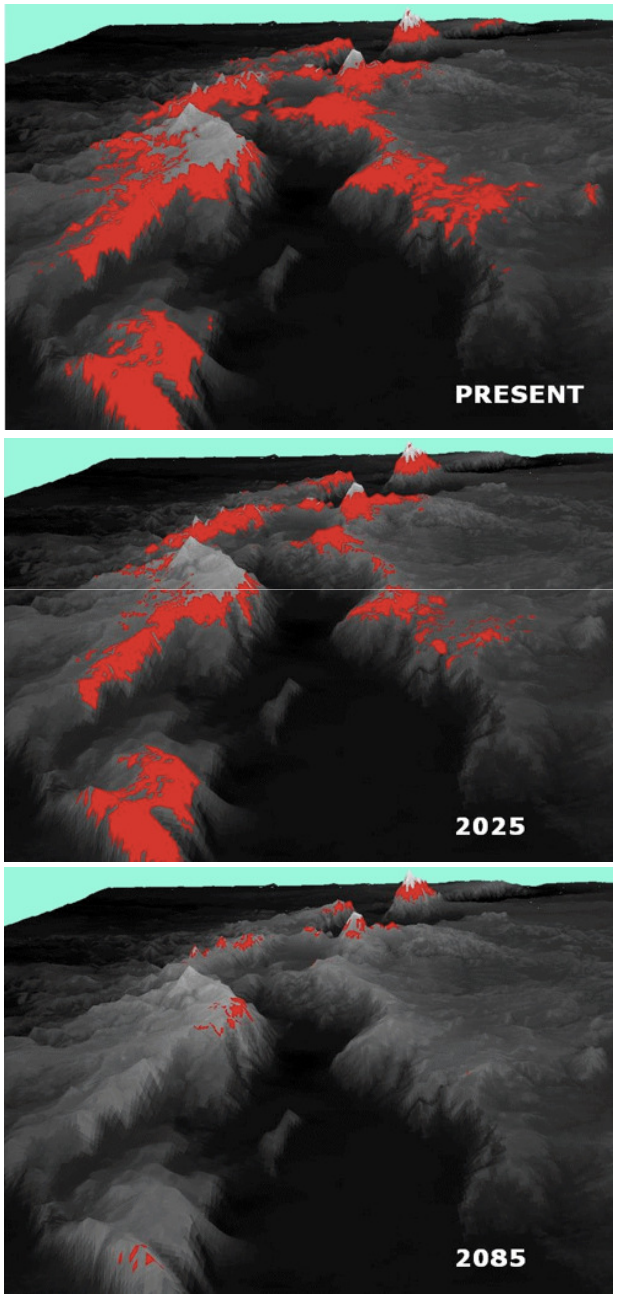


The IBAs network is projected to provide coverage for most priority bird species even under climate change…

but only if species can disperse across landscapes between IBAs

Hole et al. 2008

Current and projected range of the Regal Sunbird (in red)



Climate change has already caused species ranges to shift on the order of 10 km per decade and this trend is projected to continue throughout the 21st century

Example of the Regal Sunbird (*Nectarinia regia)*

currently of Least Concern (IUCN)
but with substantial range contraction projected due to climate change

Sekercioglu et al. (2012) and
Birdlife International
www.birdlife.org/news/news/2008/07/rwanda_meeting.html

Regal Sunbird (*Nectarinia regia)*

Current range

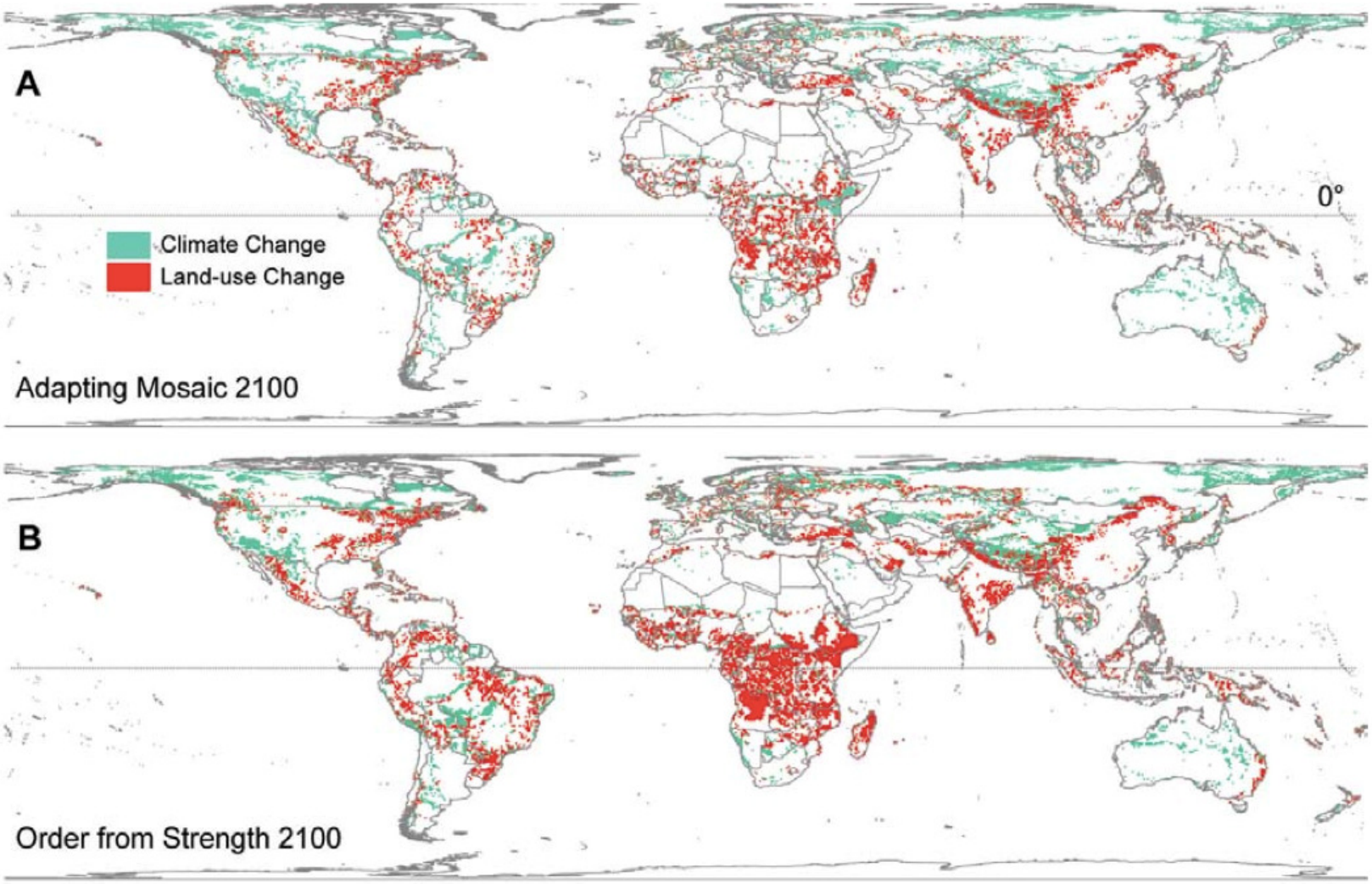
- **Climate change has already caused substantial range shifts of most animal species studied and these are projected to continue over the coming decades (10's of km per decade)**

- **Biodiversity conservation strategies need to account for these projected range shifts. This will require collaboration at international scales**

- **Conservation strategies must account for habitat suitability of all land use types, since species will move across a wide range of landscapes**

Land use change in Africa will be the principal driver of biodiversity change over the next several decades

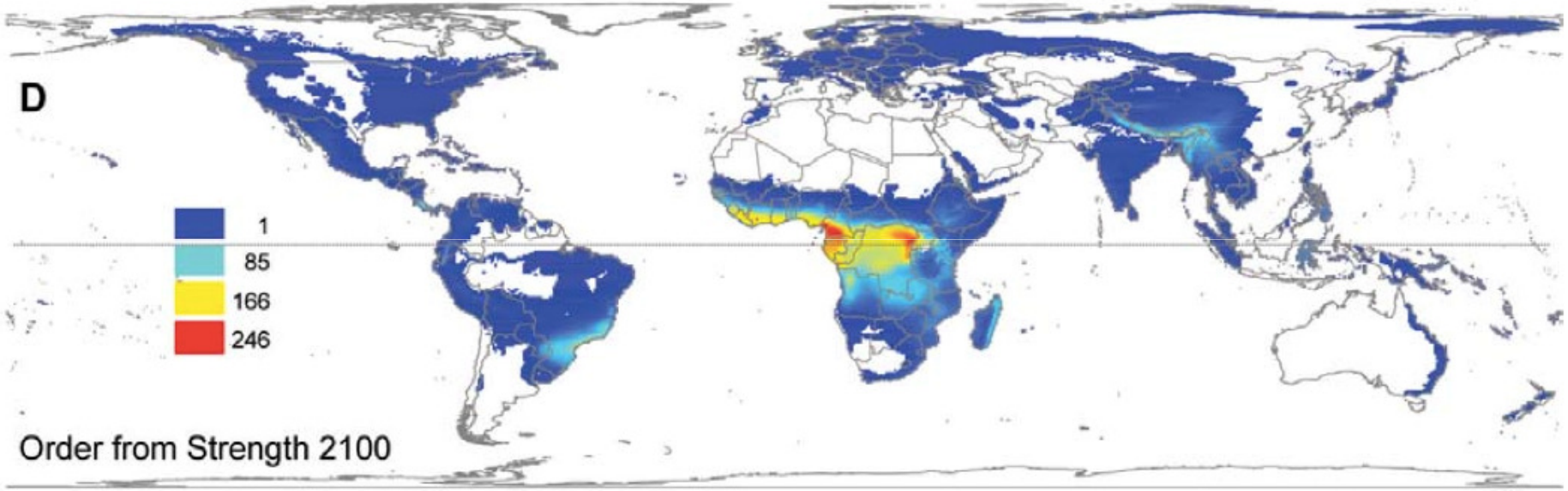
Regional scale land cover change is typically anticipated to be the most extensive in Sub-Saharan Africa



Millennium Ecosystem Assessment scenarios - *Jetz et al. 2007*

Regional scale cand cover change is typically projected to be the largest in Sub-Saharan Africa…

with potentially large impacts on biodiversity

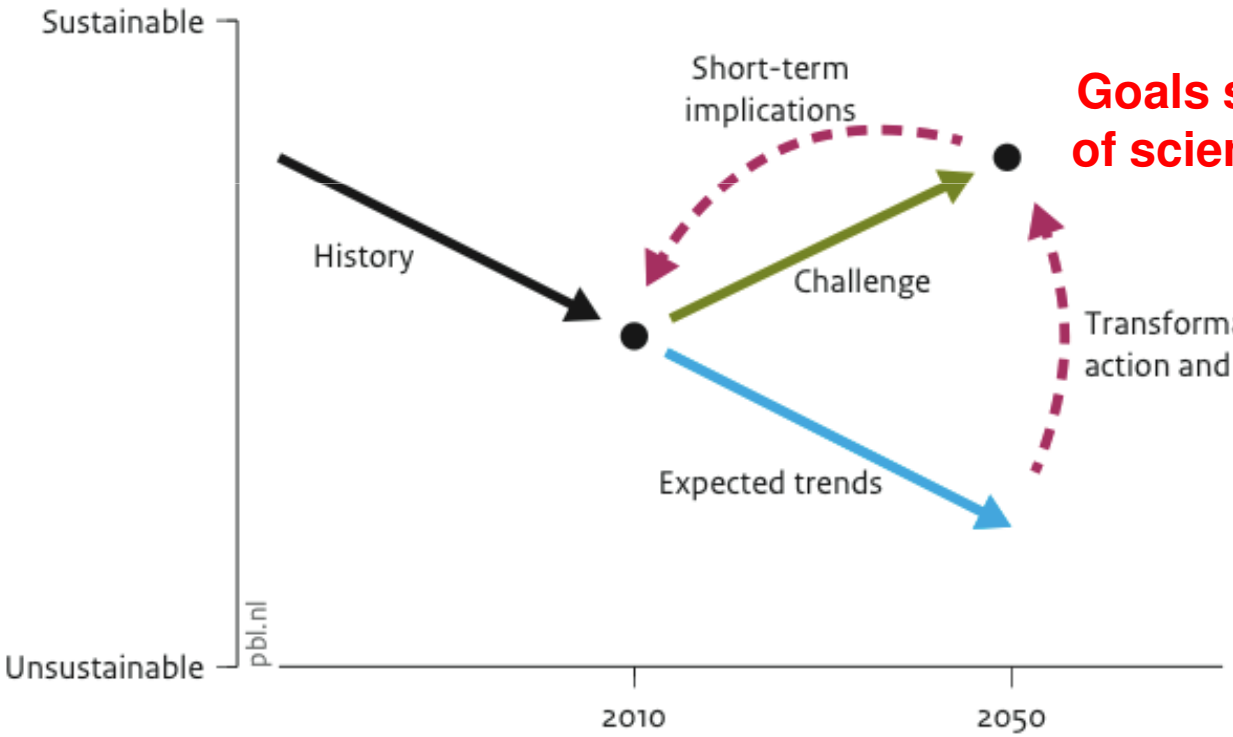


Example: Projected number of species of bird extinctions by 2100

Millennium Ecosystem Assessment scenarios - *Jetz et al. 2007*

New socio-economic development scenarios illustrate ways in which land cover changes can be strongly attenuated, human development goals attained and climate change mitigated

Backcasting analysis, working back from a sustainable end point to determine actions for today



Goals set on the basis of science-stakeholder dialogs

PBL Netherlands Environmental Assessment Agency

Roads from Rio+20

Pathways to achieve global sustainability goals by 2050

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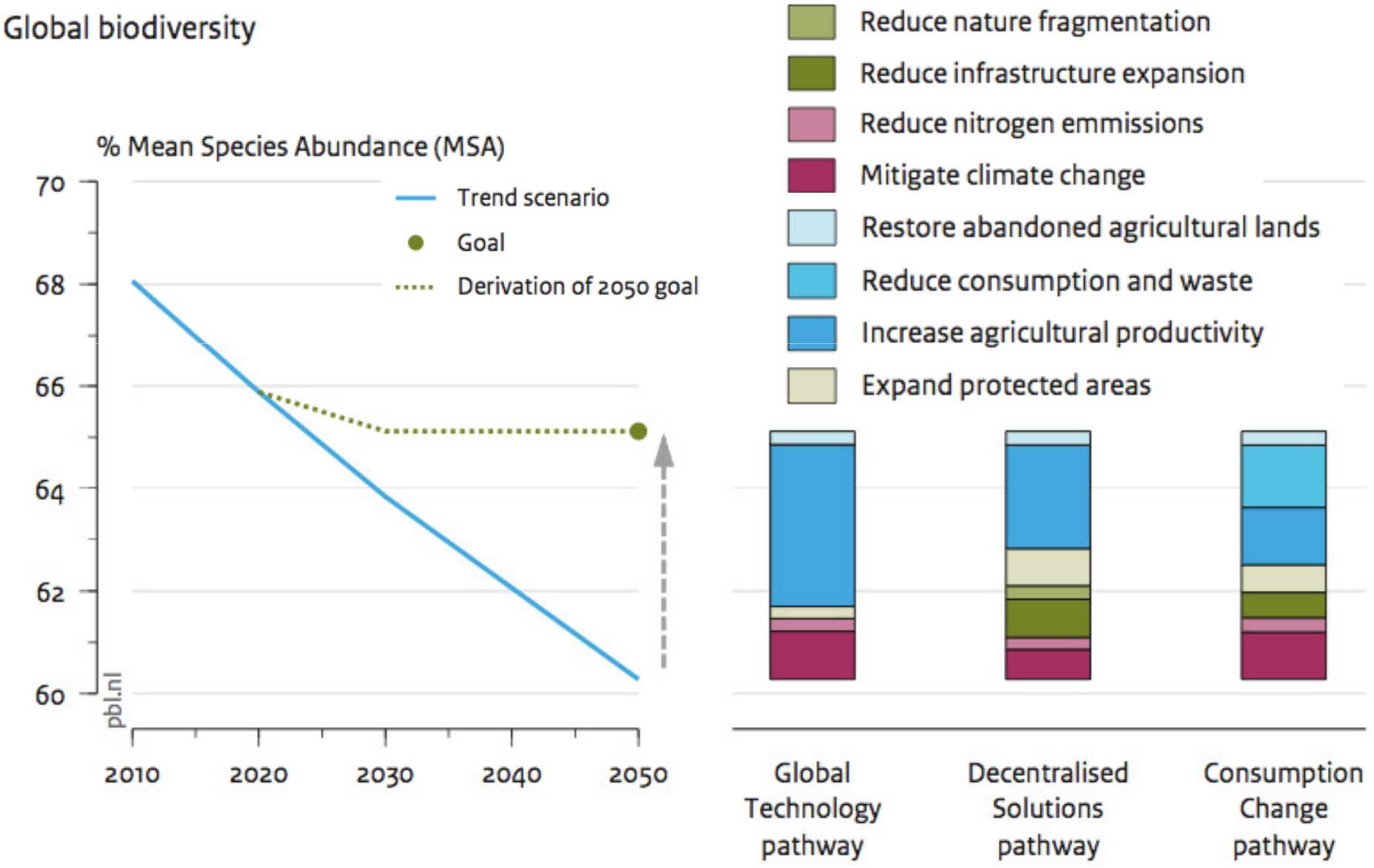
Global biodiversity and options to prevent biodiversity loss



Anticipatory learning through participatory scenarios planning

Promoting dialogue within multi-stakeholder platforms to enhance the adaptive capacity of grassroot people and the resilience of the socio-ecosystem

Need for adequate tools to generate experience of dealing with change

Suitable use of these learning tools in high poverty contexts with complex livelihood-vulnerability risks (ability to learn by mistakes)

Tschakert and Dietrich, 2010

Participatory simulation of local resource-users decision making processes

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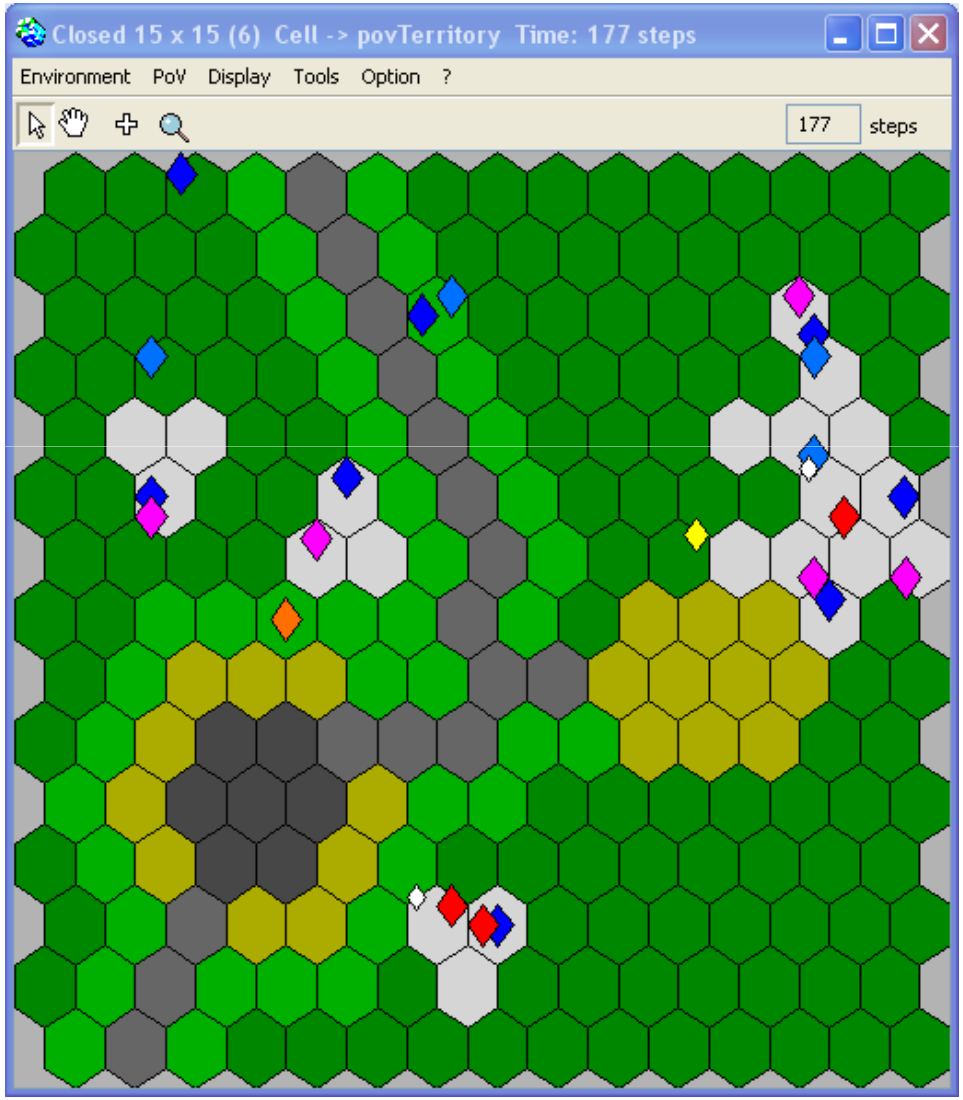
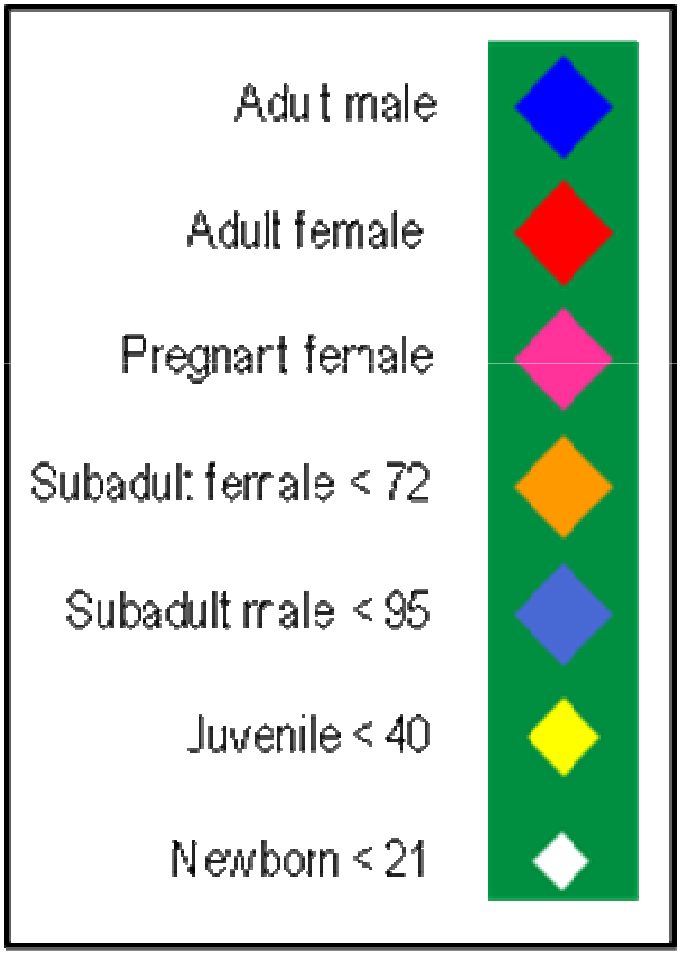
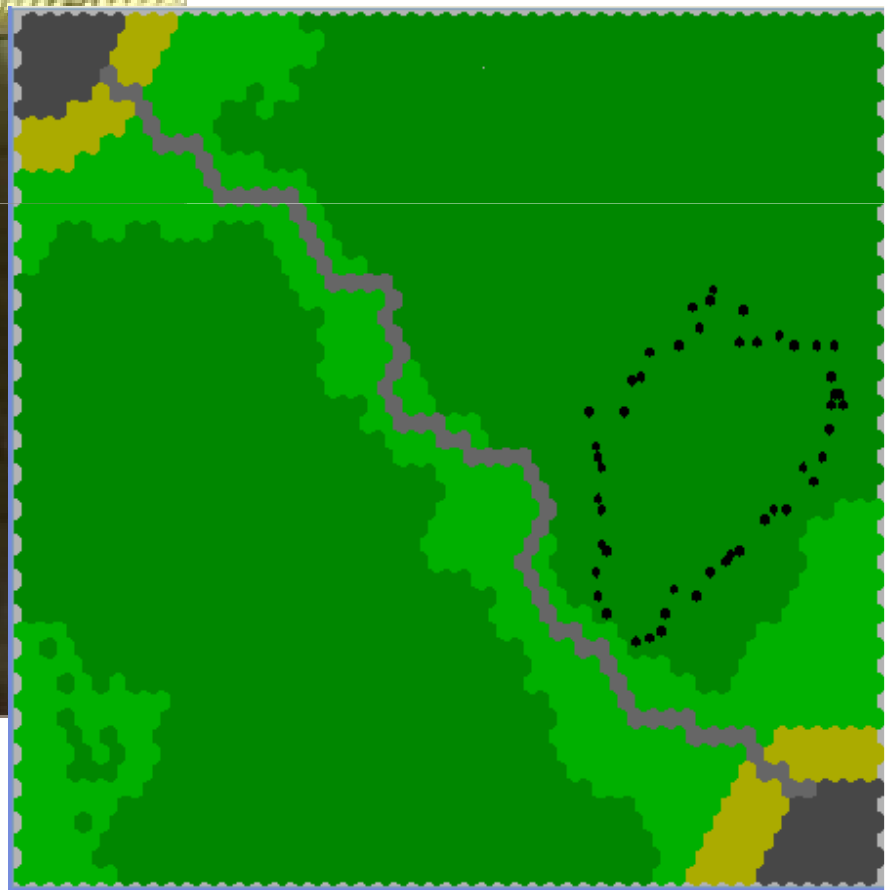




Participatory simulation of local resource-users decision making processes



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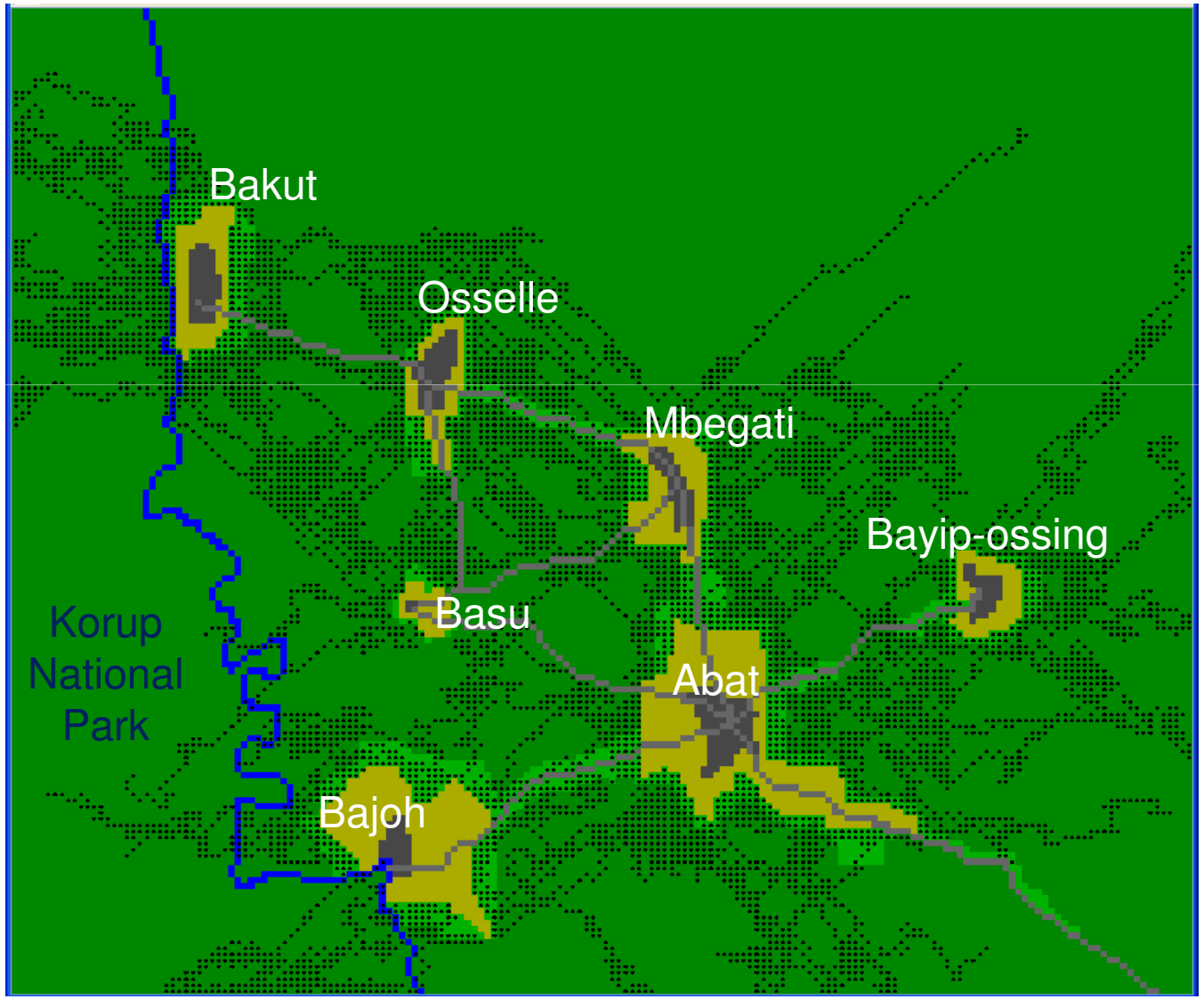

Participatory simulation of local resource-users decision making processes

Confluence of Futures Studies, Action Research & Resilience

www.resilience2014.org